

## **IPN leads international development of Chikungunya virus vaccine**

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- **Public Education Minister, Delfina Gomez Alvarez, has highlighted the contributions made by higher education institutions to the solution of national problems, including health**
- **IPN's General Director, Arturo Reyes Sandoval, leader of the project, stressed the biological is among only four projects that have been successfully tested in humans**

With the leadership of the IPN's General Director, Arturo Reyes Sandoval, the National Polytechnic Institute, in collaboration with Oxford University and Texas University, successfully concluded the human trials of a vaccine against a viral infection transmitted by the Aedes mosquito, known as Chikungunya Fever.

Public Education Minister, Delfina Gomez Alvarez, has highlighted the contributions made by higher education institutions for the solution of national problems, including health, therefore, she has expressed her commitment to continue strengthening this educational level for the country's benefit.

For his part, Dr. Arturo Reyes Sandoval, in charge of managing the funds, organizing the trial and leading the work team, explained that these results place the ChAdOx1 Chik vaccine, which he developed with his collaborators, as a leading strategy worldwide, among only four projects that have been successfully tested in humans, that is, in clinical trials, in more than 50 years in which the Chikungunya Fever virus has been isolated, identified and during which attempts have been made to develop vaccines against this pathogen without much success.

He stressed that this research, which is supported by the National Laboratory of Vaccinology that is being created in the IPN, was recently published, under its main authorship, in the prestigious journal Nature Communications (<https://www.nature.com/articles/s41467-021-24906-y>), where it has been considered by the editors as one of the 50 most important publications in the area of microbiology and infectious diseases, so it is mentioned in its "Research Highlights" section (<https://www.nature.com/collections/jedgcgeija>), since it is one of the 4 leading vaccines, which worldwide, have come to be tested in humans.

He commented that the development of the vaccine was based on the adenovirus ChAdOx1, which has been used by Oxford and AstraZeneca as a vaccine platform, which expresses a protein of the SARS-CoV-2 virus that has been effective against COVID-19, and is being distributed worldwide.

He added that the adenovirus went through stages of genetic engineering to be able to express a cassette with not one, but with 5 proteins, and thus generate immune responses against much of the surface of the virus that causes Chikungunya Fever. ChAdOx1 Chik injection was given in 24 healthy volunteers between the ages of 18 and 51, a common range used in phase I clinical trials in which a vaccine is given to people for the first time.

The results indicated that 100% of the volunteers who received the vaccine showed seroconversion, or presence of antibodies against the Chikungunya virus regardless of the dose used, which allows us to predict that even very low doses would allow high levels of protection against Chikungunya Fever.

Likewise, the group of scientists, led by Dr. Arturo Reyes Sandoval, measured the ability of the serums of vaccinated people to neutralize the Chikungunya Fever virus, through assays that quantify the ability of the serum to neutralize the virus and thus prevent it from penetrating its target cell.

The results indicated that even the lowest doses of the vaccine administered only once, induced high levels of neutralization of the Chikungunya virus in 100% of the volunteers from day 14 after vaccination, remaining high during the six months in which the clinical trial lasted.

Chikungunya Fever, like Zika and Dengue, is a disease transmitted by the Aedes mosquito, which circulates widely throughout Mexico, particularly in hot and humid areas of the country, as well as in Central and South America and can leave people with arthritis for the rest of their lives. It occurs intermittently so it is expected that more epidemics will occur in the coming years in our region.